August 3, 2004

OFFICE OF THE HEARING EXAMINER
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DECISION DENYING APPEAL, SUBJECT TO CONDITION

SUBJECT: King County Department of Natural Resources and Parks
Wastewater Treatment Division

BRIGHTWATER FINAL ENVIRONMENTAL IMPACT STATEMENT APPEALS OF ADEQUACY

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SYNOPSIS OF DECISION

This appeal challenges the adequacy of the Final Environmental Impact Statement for the Brightwater Regional Wastewater Treatment System (FEIS) on two grounds. First, that the FEIS fails to identify and evaluate an adequate range of alternatives to accomplish the objectives of the proposal; and second, that there is not sufficient discussion of the probable impacts of the proposal related to seismic events.

This decision by the hearing examiner concludes that on November 19, 2003, the date the FEIS was issued, it was adequate.

On December 1, 2003, King County Executive Sims made the decision to locate the site of the Brightwater sewage treatment plant on the "Route 9 site", convey effluent from the treatment plant along the "195th Street alignment", and discharge treated effluent into Puget Sound at the Point Wells "Zone 7S" outfall. On the date of the County Executive's decision, the FEIS was still adequate.

In March 2004, King County received additional information from the United States Geologic Survey (USGS) concerning the possible location of a strand of a major earthquake fault on the Route 9 site. The availability of that new information requires additional environmental investigation and analysis prior to the use of the FEIS for future governmental actions concerning permitting and construction of the proposed wastewater treatment plant on the Route 9 site. The additional information should be provided to government agencies with jurisdiction and to the public as either an addendum or as a supplement to the FEIS, based upon what the new information shows.

EXAMINER PROCEEDINGS:

Pre-Hearing Conference:	February 3, 2004
Motion Hearing:	May 3, 2004
Hearing Opened:	July 7, 2004
Hearing continued to:	July 14, 15 and 16, 2004
Hearing Closed:	July 16, 2004

Participants at the public hearing and the exhibits offered and entered are listed in the attached minutes. A verbatim recording of the hearing is available in the office of the King County Hearing Examiner.

FINDINGS, CONCLUSIONS & DECISION: Having reviewed the record in this matter, the Examiner now makes and enters the following:

FINDINGS OF FACT

1. King County is responsible for planning, constructing and operating regional wastewater treatment systems. King County has two existing regional wastewater treatment plants: one, located in Renton, generally serves the southern and eastern part of the county; the other, at West Point in Seattle, serves central and northern King County (west of Woodinville) and parts of south Snohomish County.

   In 1999 King County adopted the objective of constructing an additional wastewater treatment plant (the north treatment plant) "…on a site large enough to accommodate ultimate plant build out in North King County or south Snohomish County with a capacity of 36 mgd (million gallons per day) by 2010 or as soon thereafter as possible…"[1] This objective was adopted following environmental review that included

[1] Ordinance 13680 Sections 5 and 18; Ex WTD 101, pp.8 and 42

the preparation of an environmental impact statement pursuant to the State Environmental Policy Act (SEPA).

2. This is an appeal of the adequacy of the Final Environmental Impact Statement (FEIS)[2] issued by King County for locating and building the north treatment plant and the associated wastewater pipelines and outfall. The project is now known as the "Brightwater Regional Wastewater Treatment System". The FEIS was issued by the Department of Natural Resources and Parks, Wastewater Treatment Division (WTD) on November 19, 2003.

3. On December 1, 2003, the King County Executive selected the site of the Brightwater wastewater treatment plant, the outfall location in Puget Sound, influent and effluent conveyance routes, and five primary and four secondary portal locations.[3] This decision was made with consideration given to the information and analysis contained in the FEIS that is the subject of this appeal.

   King County intends that this FEIS will also be used as the only EIS for governmental actions on all permits that are required to be issued by agencies that have jurisdiction to regulate the various elements of this proposal.[4]

4. Eight appeals of the adequacy of the FEIS were filed, seven of which have been withdrawn. The remaining appellant is Sno-King Environmental Alliance (SKEA). SKEA is an organization of persons who own property and reside in the vicinity of the proposed Brightwater treatment plant site and along the proposed pipeline route. (The pipelines are proposed for conveyance of untreated wastewater (influent) to the plant site, and conveyance of treated wastewater (effluent) from the plant to the proposed outfall in Puget Sound.)

5. The SKEA Statement of Appeal, dated January 20, 2004, specified numerous topics concerning which the FEIS was alleged to be inadequate. However, the evidence and argument presented by SKEA addresses only two alleged inadequacies: First, that the FEIS fails to identify and evaluate an adequate number of alternatives to the preferred proposal; and second, that there is not sufficient discussion of the probable adverse impacts of the proposal on the environment related to seismic events.

6. King County began the process of selecting a site for a third regional sewage treatment plant with the 1999 adoption of the current Regional Wastewater Services Plan ("RWSP").[5] Adoption of the RWSP determined that the new system would be located in north King County or south Snohomish County.

   Following adoption of the RWSP, King County identified 95 possible sites within the 160 square mile area that the county considered appropriate for location of the Brightwater treatment plant. These 95 sites were identified by King County through use of a variety of resources and activities. Those included geographic information system analysis, a commercial and industrial land search, and solicitation of land owner, realtor and community suggestions. At this stage in the site selection process, the only criteria for

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[2] The FEIS consists of volumes 1-16 produced in hard (paper) copy and, alternatively, as two compact discs. The FEIS is part of the record in this proceeding by order of the hearing examiner entered February 11, 2004. Documents "incorporated by reference " in the FEIS are not part of the hearing record unless separately entered as exhibits with identifying numbers. The FEIS does not have an exhibit number

[3] Ex WTD 108.

[4] February 3, 2004 Pre-hearing conference; FEIS Vol. 1, pp. v and xi

[5] See finding no.1

inclusion in the "world of alternatives"[6] were that there be sufficient area for construction of the proposed plant (with buffering and other mitigating measures), and that less than full development already existed at the site.

Next, King County consultants and staff developed screening criteria called "Engineering and Environmental Constraints" ("E and E constraints").[7] The E and E constraints were used to reduce the world of alternatives to those sites that were sufficiently feasible to justify further consideration in the siting process. Application of the E and E constraints reduced the number of initially identified potential sites from 95 to 38.

7. On February 12, 2001, the King County Council adopted Ordinance 14043 establishing "Phase I site screening criteria". Adoption of this ordinance was preceeded by issuance of a Determination of (environmental) Nonsignificance (DNS). Notice of the DNS was issued on November 17, 2000, and Ordinance 14043 was enacted on March 2, 2001. Notice of adoption of the policy siting criteria by the county council was published in the King County SEPA Register on March 8, 2001. The DNS for Ordinance 14043 stated:

> "The Policy Siting Criteria include Community, Technical, Environmental and Financial considerations and will be applied to candidate sites considered in the North Treatment Facility (NTF) Project siting process. These candidate sites will have already passed an initial evaluation for engineering and environmental constraints…"[8]

8. On May 14, 2001, the King County Council adopted Ordinance 14107 selecting six treatment plant candidate sites for further consideration. Ordinance 14107 also adopted site selection criteria to be used to select the final treatment plant sites. Among the technical site selection criteria adopted was, "King County shall seek NTF (North Treatment Facility) sites that minimize exposure to geologic hazards, poor soil conditions and unsuitable subsurface geology".[9]

9. Between May and September, 2001, King County staff and consultants reviewed the six candidate sites, using the site selection criteria. This review led to the county executive's determination that five sites met the site selection criteria, and that four of those five were suitable. (One of the five sites contained extensive wetlands.) The executive recommended that four sites be adopted as final candidate sites that could serve as reasonable sites in future environmental review. The four executive recommended sites were:

> "Unocal site", located in the City of Edmonds;
> "Route 9 site", in unincorporated Snohomish County;
> "Gravel quarry site", located partially in the City of Bothell and partially in unincorporated Snohomish County; and
> "Point Wells site", located in unincorporated Snohomish County.

10. The executive also recommended that two of the four sites, the Unocal and Route 9 sites, undergo further analysis and detailed review.[10] On December 10, 2001, the King County Council adopted Ordinance 14278. That ordinance found that the State Environmental Policy Act (SEPA) authorizes the county to reasonably limit the number of alternatives that need to be evaluated in an environmental impact statement (EIS) in order to avoid unnecessary cost and delay.[11] The ordinance also made the finding that delays need to be

[6] Testimony of Jim Goetz, p.2
[7] Ex WTD 4 and Ex SKEA 5, App
[8] Ex WTD 104, DNS p.1
[9] Ex WTD 105, p. 5
[10] Ex WTD 114, p. 2
[11] Ex WTD 102, p. 4

minimized or avoided, where possible, to meet the objective of providing additional wastewater treatment capacity by 2010, and that limiting detailed environmental review to two plant sites should limit unnecessary cost and delay.[12] Finally, Ordinance 14278 found,

> "(To) keep this critical project on schedule and limit public expenditures it is reasonable and necessary to select for further consideration and review as action alternatives two NTF (North Treatment Facility) systems".[13]

Ordinance 14278 provided that the final candidate sites which would be considered as action alternatives in an EIS are the Unocal and Route 9 sites (Ordinance 14278 Sec. 2), and that the responsible official shall prepare an EIS to consider, at a minimum, action alternatives that include those sites (Ordinance 14278 Sec. 4). Ordinance 14278 was enacted on December 18, 2001. Its adoption and enactment were preceded by a determination of nonsignificance (DNS) made on November 20, 2001[14]. Notice of issuance of the DNS was provided on the same date.[15] The November 20, 2001 DNS was not appealed.

11. The responsible official's decision to limit the number of action alternatives evaluated in the EIS to two treatment plant sites was made after consideration of several factors. One was the substantial additional cost and time it would take to consider more than two sites. Another was that the two sites proposed for detailed environmental review were the best two sites available, based upon Comprehensive Plan policies that supported the Unocal and Route 9 sites, and prospective difficulties in using the Gravel Quarry and Point Wells sites. The Unocal site offered an opportunity for multiple use with a transit facility. It also was a site for which a hazardous clean-up program was underway; development of the property as the wastewater treatment plant site could expedite the reclamation. The Route 9 site was also considered to be a degraded site, that could be developed to provide a break between the rural and urban areas.

    The Gravel Quarry site is at a very high elevation. Significant pumping would be required to move the influent up to the plant. This would require a very deep shaft. The project manager was concerned that if the deep shaft was not feasible for geological or other reasons, a "cut and cover" trench would be needed to convey the influent through the very sensitive Swamp Creek area. The Point Wells site had the smallest useable area of the four final sites under consideration. Part of the land is a very steep bluff that could not be used. It is also a contaminated site, but one on which there has been only a small amount of voluntary clean-up. It was unclear how extensive site reclamation would be and how long it would take, possibly compromising the ability to meet the permitting and construction timetables.[16]

    The responsible official knew, when making the decision to analyze only two sites, that there was a risk, if it turned out that one of the two selected sites was not a feasible alternative to meet the objectives of the proposal, another alternative site might need to be analyzed at a later time, adding delay to the publication of the FEIS.

12. There is no substantial evidence in the record that other prospective plant sites that were not analyzed in the FEIS would have been better alternatives for accomplishing the

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[12] Ibid
[13] Ibid p.5
[14] Ex WTD 115
[15] Ibid
[16] Testimony of Christie True, July 14, 2004

proposal's objectives than the Unocal and Route 9 sites.[17] Acting on the information available to the responsible official at the time work on the EIS was initiated and when the draft EIS and FEIS were issued, it was reasonable for the responsible official to use the Unocal and Route 9 sites, and not others, as the plant site alternatives to accomplish the objectives of the Brightwater proposal.

13. One of the E and E constraints adopted and used by King County to reduce the number of potential sites to a manageable number for further review (from 95 to 38 sites) was proximity to an earthquake fault, which was defined as "land area that is less than 0.5 km (1600 feet) from a documented seismic fault."[18] The other engineering constraints were related to: parcel size; parcel shape; slope; presence of landslides; and presence of, or potential for, lateral spreading.

The E and E constraints were considered by King County " …to be fundamental siting considerations that, if present within a land area, would seriously limit construction of a wastewater treatment plant".[19] The constraints also were considered by King County to be individually mandatory. The presence of any one, based on the defined threshold, would preclude the site from further consideration. "Only land areas that are unconstrained will be evaluated in subsequent rounds of site selection screening".[20] The King County Council knew of, and at least tacitly approved, the application of the E and E constraints to the initial list of prospective sites prior to application of the Council's site screening criteria.[21]

14. King County explained the importance of spatial separation from documented seismic faults as follows:

> "…The various facilities within a wastewater plant, including water holding tanks and non-process structures, are subject to damage during major seismic events. **The extent of damage will depend on** the magnitude of the event, the **distance from the fault to the plant site**, and if the fault ruptures the ground surface at the site. Typically, the greater the distance, the lesser the damage. For screening purposes, **a minimum horizontal separation of 0.5 km (1,600 feet) from a documented fault is recommended."**[22] (Emphasis added)

At the hearing on this appeal, King County presented testimony and argument that attempted to diminish the importance of the engineering constraints with respect to construction and operation of the treatment plant. The testimony and argument particularly downplayed the importance of proximity to a fault. That testimony and argument is not persuasive in light of the clear documentary record concerning the rationale for and the importance of those constraints.

Although Dr. Keaton testified for King County that, "A facility that is just outside the zone of deformation, meaning discrete displacement and warping or folding, is just as safe from fault-rupture hazards as one that is 0.5 km away from the fault",[23] he also testified that the amount of damage attributable to surface rupture is relatively

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[17] See Muckelshoot Indian Tribe vs. U.S. Forest Service, 177 F.3d 800 (9th Cir. 1999), cited by appellant. "(W)e are troubled that in this case, the Forest Service failed to consider an alternative that was more consistent with its basic policy objectives than the alternatives that were the subject of final consideration."
[18] Ex WTD 4, App D, p. 2
[19] ibid p.4
[20] ibid p.2
[21] See finding no. 7. above
[22] Ex WTD 4, Appendix D, p.4
[23] Keaton testimony p.5

insignificant in comparison to that suffered as a result of ground shaking.[24] The county commissioned a Probabilistic Seismic Hazard Analysis (PSHA) to address the new information of a possible mainland extension of the SWIF "within a few kilometers or less of the proposed plant site".[25] That analysis increased the projected likely ground acceleration from a "50 year" earthquake[26] by 25% over the projected ground shaking at the site without the mainland projection of the SWIF.

The Shannon and Wilson draft PSHA, provided to King County on April 2, 2004, states that three fundamental parameters are required for calculation of the ground motion hazard. They are the size and location of the potential earthquake source, frequency of activity, and the ground motion attenuation between a source and a given site.[27] Attenuation is in large part dependent upon distance. It is not known what a PSHA would show as likely ground acceleration 200 meters or less from a fault zone of the SWIF. There is also no discussion in the FEIS or in the record of the rationale for using a probabilistic seismic hazard anlaysis rather than a deterministic analysis (based specifically on the possibility of a fault located on or very near the site of the proposed treatment plant facilities). See WTD Ex 159.

The expert testimony and all of the evidence considered as a whole makes it very clear that construction and operation of a sewage treatment plant either on, or in very close proximity to, an active fault substantially increases the risk of plant damage during a seismic event, consequentially increasing the risk of significant adverse impact to the environment.

15. Engineering design and construction techniques can reduce the risk of damage from seismic activity on a nearby fault. However, knowledge of the actual location, and the magnitude and frequency of recent activity of a fault zone on or near the plant property, if such a fault zone exists, is essential to a reasoned choice of how to design and where to construct treatment plant facilities on the property.

16. The last twenty years have seen substantial investment in earthquake research in an effort to improve predictability of locations, magnitudes and recurrence intervals, for the very purpose of assisting in the location and design of structures. (The USGS has a "Geologic Hazards Team" that includes earthquake scientists whose publications are used for this purpose.)[28] Research performed by the USGS and University of Washington, financially supported by King County, during the period 2002 through the spring of 2004, has provided data and analysis, based on aeromagnetic surveys and light detection and ranging (LIDAR), obtained in the actual vicinity of the Route 9 site. This recent information has led seismologists of the United States Geological Survey (USGS) to hypothesize possible extensions of the SWIF 1.2 km east of the Route 9 site (Cottage Lake fault) and on the site itself (Lineament 4).

King County has invested heavily in the collection of LIDAR data in the region, and particularly requested that flights be flown to obtain data that might be useful for siting and constructing the Brightwater facilities. In March, 2004, King County received information from the USGS concerning the feature that is now referred to as "lineament 4", a possible fault on the Route 9 site. The substance of the new information is that aeromagnetic data and LIDAR topographic images both indicate a lineament across the north central portion of the site, under the present StockPot (Campbell Soup Company) building that is being considered for use as a Brightwater maintenance and/or

[24] Ibid
[25] Ex SKEA 28, p.1
[26] An earthquake with a 2% likelihood of occurring in a 50-year period
[27] Ex SKEA 28, p.3
[28] Ex SKEA 20; Yeats oral testimony (response to question by hearing examiner)

administrative building. Lineament 4 is about 3 km long and follows the lower Bear Creek drainage. It crosses SR 522 about 1 km northeast of the intersection of SR 522 with SR 9, where it appears to enter the Route 9 plant site. The southeastern part of the lineament (beyond the plant site) is aligned along a deep ravine, a low ridge or scarp, and two additional scarps. This topographic lineament lies parallel to and along an aeromagnetic anomaly. The two short scarps at the southeast end show field evidence for north-side-up deformation, which could be associated with landsliding, seismic activity, or both

Based on the new information, USGS seismologists hypothesized the existence of a scarp that could be evidence of a strand of the SWIF crossing the Route 9 plant site. The location of the lineament is 620 feet (approximately 189 meters) north of the area on which wastewater treatment facilities are currently planned, and approximately 200 feet (61 meters) north of planned surface water detention and treatment facilities. Strands of a fault can be a few meters to several hundred meters across.

On or about April 30, 2004, the USGS issued Open File Report 2004-1204, addressing possible onshore extension of the Southern Whidbey Island Fault (SWIF)[29]. Although lineament 4 identified in this report is not a "documented fault" as defined by King County, it is a more likely extension of the SWIF zone than the previously projected fault lines that led to the exclusion of other sites from further consideration.[30] The information and analysis contained in this 2004 USGS report is clearly significant to the construction of a wastewater treatment plant on the Route 9 site. Based upon the data and analysis now available, it is unreasonable to not promptly explore the Route 9 site by trenching to determine whether a strand of the SWIF is on the site, and, if it is, to estimate the magnitude and frequency of its recent activity.

17. The ongoing subduction of the Juan de Fuca plate beneath the North American continental plate creates deformations. There is an average annual five to six mm north-south shortening of the Washington forearc. Those pressures that are not released by slow, steady movement in the earth's crust are periodically released as earthquakes. The occurrence of these periodic releases of energy in the form of earthquakes is not a remote possibility; it is a virtual scientific certainty. There are, however, real uncertainties. They are the precise locations where sudden movements will occur; their magnitudes; and their likely recurrence intervals. The research and additional information summarized in Open File Report 2004-1204 reflects major recent advancements in the ability to reduce those uncertainties, and provides a scientific basis for taking further action to analyze risks associated with the SWIF.

The SWIF is a significant structure. Much of the deformation that occurs from the subduction movements below the earth's crust is accommodated on regionally extensive crustal faults that cross the Puget Lowland, including the Olympia, Tacoma, Seattle, Southern Whidbey Island and Devil's Mountain faults. A growing body of evidence is showing that all of these faults are active. "Along with the Tacoma and Seattle faults, the location of the SWIF affects earthquake hazard calculations for central and southern Puget Sound."[31]

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[29] Ex. SKEA 10

[30] Early in the site screening process, King County used projected extensions of the South Whidbey Island Fault (SWIF) as a basis for excluding sites within 0.5 km of a "documented fault". Those projections had been hypothesized by geologists (Gower, et al) in an article published in 1985, and were not based upon data or observations east of Whidbey Island. Subsequent research, published in 1996 (Johnson, et al) postulated different locations for extensions of the SWIF. The 1996 research was based upon data from the marine floor between Whidbey Island and the mainland.

[31] Ex. SKEA 10

The SWIF is a mostly concealed, northwest-southeast aligned fault that extends from southeast Vancouver Island, across southern Whidbey Island and to the mainland, possibly in the vicinity of Cottage Lake (south and east of the Route 9 plant site). On Whidbey Island, three main strands have been investigated, with strike slip and reverse displacements. The most recent research (Kelsey, et al, 2004) found differences in relative sea level histories on opposite sides of a newly mapped trace of the SWIF, which was interpreted as evidence for a one to two meter vertical displacement during a magnitude 6.5-7.0 earthquake about 3000 years ago. Earlier research (Johnson, et al, 1996) estimated that the SWIF is capable of greater than magnitude 7 earthquakes, based on the length of the structure.[32] A 7.0 magnitude earthquake would have a "pretty good likelihood of rupturing the surface."[33]

18. As of November 19, 2003 (the date of publication of the FEIS that is the subject of this appeal), USGS seismologists had hypothesized the existence of the Cottage Lake anomaly as a possible extension of the SWIF, but had not publicly or privately identified any anomalies on the Route 9 site itself, or closer than 1.2 km to that site. As of December 1, 2003 (the date of Executive Sim's decision selecting the Route 9 site for construction of the treatment plant), the information known to King County concerning the location of anomalies and hypothesized faults in the vicinity of the site had not materially changed from what was known to the county on November 19, 2003.

19. Upon receipt of the information discussed in Finding No. 16, King County discussed the new information with members of its consulting team and employed an additional geological consultant to investigate the existence of the possible on-site fault. Establishing a trench to investigate the possible fault was discussed on one occasion and dismissed. As an alternative, the consultant utilized a non-invasive geophysical test (performed on the surface of the site), a linear refraction survey, in an effort to determine the existence or location of the hypothesized fault at less cost and in less time than trenching. The linear refraction survey yielded inconclusive results.

20. King County proposes to do no further inspection or analysis of the site to determine the presence or absence of an earthquake fault on the site prior to excavation of the site for construction of the treatment plant and associated facilities. Site excavation is not planned to begin until 2006. A qualified geologist is proposed to be on site during excavation to advise the construction contractor and King County if it appears that excavation is occurring in a fault zone.

    Final design and engineering plans for the treatment plant are targeted to be complete in mid-2005. All necessary permits should be obtained by mid-2006, when construction is likely to begin.

21. The "fail safe" outlet for the discharge of wastewater from the Brightwater system, in the event of plant failure and the inability to divert flows to other treatment plants, store flows on site or in the conveyance system, or discharge flows to Puget Sound, will be to allow untreated wastewater to flow into the lower Sammamish River, about ¼ mile upstream from Lake Washington. Lake Washington is a heavily populated urban environment.

    Although the likelihood of discharge of untreated wastewater occurring during any one person's lifetime as the result of plant damage sustained by seismic activity is not great, the total period of existence of sewage treatment facilities on this site is indefinite, and can reasonably be expected to continue for several generations or longer.

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[32] Ibid

[33] Yeats, cross examination

The environmental impacts from the discharge of untreated effluent into the Sammamish River and Lake Washington would be great. The analysis of those impacts in the FEIS is minimal. References by the parties to any such discussion, and those found by the hearing examiner, primarily consider untreated discharges that could occur for short periods of time during major storm events or multiple simultaneous power outages, when diluted flows of sanitary sewage and storm water might occur during periods of heavy rainfall or power outages. Impacts from a prolonged loss of plant capacity, particularly during warm, dry weather or during important periods of habitat use of Lake Washington and the Sammamish River, are not discussed at all.

22. The method that is generally recognized by seismologists as most definitive to determine if a seismic fault exists in a suspected location is to dig a trench across the suspected lineament. This is the only method identified by the experts who testified in this case to determine the frequency of earthquakes on a fault that is not otherwise exposed. Trenching is now commonly done to assist in siting significant structures in earthquake prone areas. The trenching process calls for a geologist to identify the location(s) in the suspected area that are feasible to trench and most likely to yield definitive information. A backhoe or a bulldozer is employed, and the open, protected trench is inspected by trained seismologists. Several trenches have been dug and inspected in the Puget Sound lowland, resulting in substantial information concerning the extent of earthquake activity (severity, crust displacement and dates of occurrence) on faults associated with or in proximity to the Seattle fault. [34]

23. A reasonable budget for trenching to confirm the presence, and analyze the activity, of a seismic fault, if any, at a specific location, is likely to be $50,000 or less. That amount would normally include selecting a specific trench site, opening and protecting the trench, inspection by one or more qualified seismologists, laboratory dating of excavated sample materials, preparing a geologic report and closing the trench. Complications associated with trenching, such as de-watering in a high ground water area, obtaining necessary permits and ownership permissions, and notifying nearby residents and land owners in densely developed areas, are dealt with frequently and successfully.

The Brightwater treatment system capital improvement budget is approximately $1,350,000,000. Expenditures made on the project during the 4 year siting process, with engineering and program development through December 31, 2003, have been approximately $60,000,000.

24. The Brightwater influent and effluent conveyance pipelines, 8.1 miles long and 12.6 miles long, respectively, will be constructed in tunnels with a total length of approximately 15.9. (4.8 miles will be in a shared tunnel for both influent and effluent.) The effluent route runs west from the plant site to Point Wells, and an additional one mile from Point Wells into Puget Sound, to a diffuser outfall. The FEIS states: "Published information indicates that there is no surface expression of ground faulting within 1 mile of any of the proposed conveyance alignments. Recent, unpublished interpretations of data (Troost, 2003) indicate a potential for some of the SWIFZ lineaments to pass across all the conveyance alignments. If present and if a fault rupture were to occur, it could damage the pipeline and groundwater could drain into the pipeline under hydrostatic heads ranging from 50 to 250 feet. Brightwater designers are working with the researchers from the USGS and the University of Washington to incorporate the most current interpretation and data into the Brightwater System design and siting."

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[34] Yeats testimony, p.48
Ex. SKEA 18, p.6
Ex. SKEA 19, p.10
Ex. SKEA 20, pp. 1388-1390

USGS Open File Report 2004-1204, issued on April 30, 2004, "(I)dentified four or five northwest-trending lineaments that cross or come close to the conveyance tunnel alignment."[35] Crossing lineaments that may be active earthquake faults is a feature common to all of the analyzed conveyance alternatives. Both the possibility of pipe rupture and the proposed mitigation, to address this eventuality through repair, are discussed in the FEIS.

Linear facilities, such as pipelines, cannot avoid linear hazards that cross their routes. Engineering philosophy and procedures have been developed to allow responsible development of lineal structures across potential faults. The philosophy accepts that the benefit of the structure can outweigh the risk and costs of damage that may occur. Although elaborate means may be available to preclude damage to the tunnel and pipeline in the event of possible rupture on faults that the pipeline may cross, there is no evidence that the means and cost of doing so are technically feasible or economically justified.

CONCLUSIONS

1. The King County Hearing Examiner has jurisdiction of this appeal pursuant to RCW 43.21C.075, KCC 20.24.080.A.1, and King County Public Rule PUT 7-4. That jurisdiction is to consider the FEIS as it was issued on November 19, 2003.

2. SKEA has standing to pursue this appeal.

3. The burden of proof is on the appellant to show that the FEIS does not comply with SEPA. The determination of whether an environmental impact statement is or is not adequate is a procedural determination. Procedural determinations made by the responsible official are entitled to substantial weight. The FEIS may be overturned only if it is not adequate under the rule of reason.

4. The only issues remaining on appeal are whether the FEIS is inadequate, based on two alleged grounds: First, that the FEIS fails to identify and evaluate an adequate range of alternatives to accomplish the objectives of the proposal; and second, that there is not sufficient discussion of the probable impacts of the proposal related to seismic events. All other issues set forth in the statements of appeal filed herein have been withdrawn or waived.

5. The FEIS is required to provide a reasonably detailed analysis of a reasonable number and range of alternatives that could feasibly attain or approximate the proposal's objectives. The purpose of the alternatives analysis is to provide sufficient information for officials to make a reasoned choice, giving consideration to possible means to accomplish an objective at lower environmental cost or decreased environmental degradation. SEPA does not require identification and analysis of all viable alternatives.[36] It was reasonable for King County to consider the time and cost of analyzing alternatives as a significant factor in deciding how many alternatives to analyze in the FEIS.

6. There is no evidence that the two sites analyzed in the FEIS, based on the information available to King County at the time it selected those sites for environmental review, were not, in fact, the two best prospective sites for the Brightwater wastewater treatment plant. Although other sites could have been selected for environmental review in addition to the Route 9 and Unocal sites, it was reasonable for King County to limit its

[35] Keaton testimony p. 7
[36] WAC 197-11-440 (5) (b) (i)

environmental review to those two sites, with alternative conveyance corridors for the Route 9 site, and possible joint use of the Unocal site for sewage treatment and a multi-modal public transportation hub.

7. The decision of the responsible official to analyze not more than two prospective treatment plant sites as alternatives to meet the objectives of the Brightwater proposal was not clearly erroneous.

8. The FEIS issued on November 19, 2003, based upon the information available to King County on that date, provided a reasonable analysis of a reasonable number of alternatives to accomplish the objective of constructing a north wastewater treatment system. Based upon information available to King County on December 1, 2003, the FEIS issued on November 19, 2003 was still adequate for the purpose of selecting a site for the Brightwater sewage treatment plant, outfall, conveyance system and portals.

9. The FEIS provided and continues to provide a reasonably adequate analysis of possible damage to the influent and effluent pipelines from seismic events, including pipeline rupture that might occur from movement of earthquake faults that are necessarily crossed by the pipelines. The method described in the FEIS to mitigate the environmental impacts of any earthquake related damage to the conveyance tunnel and pipelines is to promptly inspect the pipelines following a seismic event, and to repair any damage. This proposed mitigation has not been shown to be unreasonable.

10. At the present time, based upon information and analysis that became available to King County in March 2004, there is substantial reason to suspect that a significant seismic fault may exist on or very near the Route 9 site. The zone of disturbance of this fault could be in proximity to buildings, other structures and facilities proposed to be constructed and used by King County as, or in conjunction with, the Brightwater wastewater treatment plant. This suspicion is not remote and speculative, but is based upon the type of data and analysis that has led to the discovery of other active faults in the Puget Sound region.

    The FEIS currently provides insufficient information and analysis concerning the suspected fault on the Route 9 treatment plant site. Substantial additional information on the existence, location and activity of that suspected fault is reasonably available by trenching on or near the site to meet the informational requirements of the State Environmental Policy Act. The opening and inspection of a trench is the method now generally accepted by earthquake geologists to ascertain the presence or absence of a fault in a suspected area, and to learn the history of activity on a fault where a fault exists. Information from trenching is essential as the basis for a reasonable discussion and analysis of the likelihood and extent of adverse impacts that could occur as a result of plant damage from seismic activity on the suspected fault. The cost to obtain that additional information through trenching is not exorbitant in light of the overall cost, importance and likely duration of the proposal. Under these circumstances, WAC 197-11-080 (1) requires that this additional information be obtained and included in the environmental documents. The dissemination of that additional information, as a supplement or addendum to the FEIS, should be made in accordance with conclusions Nos. 12 and 13, below, prior to future governmental actions on this proposal.

    Without that additional information, the November 19, 2003, FEIS is not adequate for future government actions that will determine the location of wastewater treatment facilities on the Route 9 site or provide the permits that are required for the construction of improvements on that site.

11. The King County Hearing Examiner has authority pursuant to KCC 20.24.080 to grant or deny this appeal, or grant the appeal with such conditions and restrictions as are

necessary to carry out applicable state laws and regulations, including, *inter alia*, SEPA and the laws, policies and objectives of King County.

12. No authority has been cited to the examiner that supports a decision that would make vulnerable the site selection decision that was properly made on or about December 1, 2003, when the FEIS was still adequate. The decisional law of the State of Washington, with its strong bent toward the protection of vested rights, would clearly militate against any such decision.

However, the State Environmental Policy Act and Regulations contemplate the use of current information for making all decisions that are subject to SEPA.[37] The use of a single environmental document as the sole basis for the environmental review of a series of actions that will occur over a number of years would be contrary to the intent of SEPA when new information relevant to those actions becomes available.

SEPA provides for alternative methods to provide additional environmental information when necessary: supplemental environmental impact statements, and addenda. A Supplemental EIS must be used when there is new information indicating a proposal's probable significant adverse impacts.[38] An addendum may be used "to provide additional information or analysis that does not substantially change the analysis of significant impacts and alternatives in the existing environmental document."[39]

Although King County intends for the November 19, 2003 FEIS to be the only EIS for review of all remaining actions leading to construction and operation of the Brightwater system, King County has also expressed its intent to provide additional environmental information as needed. That additional information should meet the SEPA requirements.

13. New information now available to King County indicates a suspected fault on the Route 9 site. This new information creates a clear need to provide additional information pursuant to WAC 197-11-080(1). King County should now obtain additional available information as to the location of the fault on the site, and the extent of recent (Holocene epoch) earthquake activity on the suspected fault, if any. If that additional information discloses recent activity of a fault on the Route 9 site, that information would constitute new information on the proposal's probable significant adverse impacts. The discussion of that new information would require issuance of a Supplemental EIS for future government actions.

If the new information indicates that an active fault is not present on the Route 9 site, that information would not substantially change the analysis of significant impacts and alternatives contained in the November 19, 2003 FEIS. That new information could be circulated in an Addendum to the November 19, 2003 FEIS.

DECISION:

The appeal by Sno-King Environmental Alliance of the adequacy of the November 19, 2003 FEIS is denied, subject to the condition that at least one investigative trench be excavated on or near the Route 9 site. The trench or trenches shall be located, dug, examined and analyzed consistent with current geological standards, and the results of the examination and analysis shall be published as a supplement or addendum to the FEIS, prior to further governmental actions on this proposal with respect to construction on the Route 9 site.

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[37] WAC 197-11-620-625
[38] WAC 197-11-600 (3)(b)(2)
[39] WAC 197-11-706

ORDERED this 3rd day of August, 2004.

_____
James N. O'Connor
King County Hearing Examiner *pro tem*

TRANSMITTED this 3rd day of August, 2004, to the following parties and interested persons of record:

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MINUTES OF THE JULY 7, 14, 15 & 16, 2004 HEARINGS ON BRIGHTWATER FEIS APPEAL.

James N. O'Connor was the Hearing Examiner in this matter. Participating in the hearing were Jennifer A. Dold, attorney for the Appellant, J. Tayloe Washburn, and Patrick J. Mullaney, attorneys for the Respondent, and witnesses Dr. Robert Yeats, Christie J. True, James Goetz, Michael Popiwny, Stan Hummel, Bob Peterson, David McCormack, Dr. Jeffrey Keaton, W. Paul Grant and Gunars Sreibers.

The following exhibits were offered and entered into the record for the Appellant:

Exhibit No. SKEA 1	Dr. Robert S. Yeats' Resume
Exhibit No. SKEA 2	December 1, 2003 Siting Decision by King County Executive Ron Sims
Exhibit No. SKEA 3	Copy of "Seismotectonic Map of the Puget Sound Region, Washington" By Howard D. Gower, James C. Young and Robert S. Crosson, Dated 1985
Exhibit No. SKEA 4	Index Map prepared by Rogers, et al. in 1996
Exhibit No. SKEA 5	Brightwater Treatment Plant Siting Process; Engineering and Environmental Constraint Analysis prepared by King County Department of Natural Resources, Wastewater Treatment Division
Exhibit No. SKEA 6	Brightwater Siting Project Technical Memorandum dated September, 2001

Exhibit No. SKEA 7	Letter to J. Tayloe Washburn from Jennifer Dold dated April 28, 2004
Exhibit No. SKEA 8	Letter to Jennifer Dold from J. Tayloe Washburn dated April 29, 2004
Exhibit No. SKEA 9	Letter to J. Tayloe Washburn from Jennifer Dold dated May 3, 2004
Exhibit No. SKEA 10	USGS Open-File Report 2004-1204; The Cottage Lake Aeromagnetic Lineament: A Possible Onshore Extension of the Southern Whidbey Island Fault, Washington
Exhibit No. SKEA 11	Addendum 3, Final Environmental Impact Statement; Brightwater Regional Wastewater Treatment System, dated April 2004, King County Department of Natural Resources and Parks, Wastewater Treatment Division
Exhibit No. SKEA 12	E-mail to Dave McCormack from K. Troost dated June 23, 2003 regarding SWI Fault
Exhibit No. SKEA 13	E-mail to Dan A. Adams, John Newby, Michael Gilbert and Vinncent Perrone from Dave McCormack dated July 29, 2003 regarding Fault Crossings on Conveyance Alignment
Exhibit No. SKEA 14	Article from The Seattle Times dated September 27, 2003 regarding Fault line could be near proposed sewage plant site
Exhibit No. SKEA 15	USGS Poster, The Cottage Lake Lineament: Onshore Extension of the Southern Whidbey Island Fault?
Exhibit No. SKEA 16	Geological Society of America Bulletin, March 1996; The southern Whidbey Island Fault: An active structure in the Puget Lowland, Washington, Johnson, et al
Exhibit No. SKEA 17	U.S. Geological Survey Professional Paper 1643 by Samuel Y. Johnson, et al; Active Tectonics of the Devils Mountain Fault and Related Structures, Northern Puget Lowland and Eastern Strait of Juan de Fuca Region, Pacific Northwest
Exhibit No. SKEA 18	June 2003 GSA Today article; High-Resolution LIDAR Topography of the Puget Lowland, Washington
Exhibit No. SKEA 19	January 2004 GSA article; Holocene fault scarps near Tacoma, Washington, USA, Sherrod, et al
Exhibit No. SKEA 20	November 2003 GSA article; Late Holocene earthquakes on the Toe Jam Hill fault, Seattle fault zone, Bainbridge Island, Washington, Nelson and Johnson, et al
Exhibit No. SKEA 21	2003 Journal of Geophysical Research; Frequency of large crustal earthquakes in Puget Sound – Southern Georgia Strait predicted from geodetic deformation rates, Hyndman, et al
Exhibit No. SKEA 22	2001 Journal of Geophysical Research; Upper crustal structure in Puget Lowland, Washington: Results from the 1998 Seismic Hazards Investigation in Puget Sound, Brocher, et al
Exhibit No. SKEA 23	Article on Land-level changes from a late Holocene earthquake in the northern Puget lowland, Washington, Kelsey, et al (submitted to Geology November 25, 2003)
Exhibit No. SKEA 24	Earth and Planetary Science Letters 198 (2002) article on GPS deformation in a region of high crustal seismicity: N. Cascadia forearc, Maggotti, et al
Exhibit No. SKEA 25	Geological Society of America Bulletin, April 2001 article; Geologic evidence of earthquakes at the Snohomish delta, Washington in the past 1200 years, Bourgeois, et al
Exhibit No. SKEA 26	Geological Society of America Bulletin, January/February 2004; Holocene landslides and a 3500-year record of Pacific Northwest earthquakes from sediments in Lake Washington, Karlin, et al
Exhibit No. SKEA 27	Article by Dr. Robert Yeats, co-written with Craig Weaver of USGS Seismological Research Letters, in press, July/August 2004
Exhibit No. SKEA 28	Shannon & Wilson, Inc. draft report dated April 2, 2004, "Probalistic Seismic Hazard Analysis"

Exhibit No. SKEA 29	Letter and Report from AMEC Earth & Environmental, Inc. dated April 27, 2004; Report, Seismic Refraction Evaluation, Brightwater Final EIS, Snohomish County, Washington
Exhibit No. SKEA 30	Excerpt, Living with Earthquakes in the Pacific Northwest, A Survivor's Guide by Dr. Robert S. Yeats (2004)
Exhibit No. SKEA 31	Excerpt from Article, Living on an Active Earth, Perspectives on Earthquake Science, National Academics Press
Exhibit No. SKEA 32	Figures 5-2, 5-3, and 5-4 from HDR, "Brightwater Conveyance System Pre-Design Report (Feb. 2004) at Volume 1, Chapter 5 in CD-ROM format
Exhibit No. SKEA 33	2004 Map prepared by Dr. Robert Yeats
Exhibit No. SKEA 34	Cross section from Dave McCormick's GSA presentation (KC 040531) and same cross section with Dr. Yeats' notes on it
Exhibit No. SKEA 35	LIDAR map showing Ballinger Way (obtained from King County) with handwriting on it by Dr. Robert Yeats
Exhibit No. SKEA 36	Robert Yeats, two figures from "Living with Earthquakes in the Pacific Northwest," 2nd Ed. (2004)
Exhibit No. SKEA 37	June 30, 2003 e-mail string from Jim Goetz to Joan Stoupa regarding USGS Study Update (KC 041066-041067)
Exhibit No. SKEA 38	July 16, 2003 URS Memorandum to Christie True, et al. (KC 041459-041461)
Exhibit No. SKEA 39	July 28, 2003 Draft Summary of Meeting Seattle-Area Geologic Mapping Project (KC 041619-41620)
Exhibit No. SKEA 40	September 6, 2003 Letter from Craig Weaver, USGS to Brian Speakes, Crystal Lake Homeowners Association (KC 040473-040478)
Exhibit No. SKEA 41	October 2003 e-mail string from Jim Goetz to Karen Dawson (KC 041033-041039)
Exhibit No. SKEA 42	Excerpts from Washington State Major League Baseball Stadium Project, Final Environmental Impact Statement ("EIS"), Vol. 1 (August 28, 1996)
Exhibit No. SKEA 43	Excerpts from Football/Soccer Stadium and Exhibition Center Project, Final EIS, Vol. 1 (April 1998)
Exhibit No. SKEA 44	Excerpts from Central Link Light Rail Transit Project Final EIS, Vol. 1 (November 1999)
Exhibit No. SKEA 45	Excerpts from Green Line Final EIS, Vol. One A (March 2004)
Exhibit No. SKEA 46	(Offered but **not admitted)**: Times Snohomish County Bureau news article
Exhibit No. SKEA 47	California Geological Survey "Note 49, Guidelines For Evaluating the Hazard of Surface Fault Rupture", California Department of Conservation (2002)
Exhibit No. SKEA 48	Copies of overhead projections used by Dr. Yeats in oral presentation on July 14,2004. (All copies are of materials otherwise entered as exhibits.)

The following exhibits were offered and entered into the record for the Respondent:

Exhibit No. WTD 3	James G. Goetz Resume
Exhibit No. WTD 4	Brightwater Treatment Plat Siting Process – Phase 1 Engineering and Environmental Constraint Analysis dated March 2001
Exhibit No. WTD 5	Map showing projections of SWIF in relation to prospective treatment plant sites
Exhibit No. WTD 6	WTD Site plan titled, "Route 9 Plant Site Lineament and Seismic Refraction Lines"
Exhibit No. WTD 7	WTD Site plan titled, "Route 9 Plant Site Consolidated Plant Layout With Lineament No. 4"
Exhibit No. WTD 8	Memorandum to Jim Goetz from Robert A. Robinson, Director of Underground Services, Shannon & Wilson, Inc. dated June 26, 2002
Exhibit No. WTD 9	W. Paul Grant Resume

Exhibit No. WTD 10	Addendum No. 3 to Brightwater Final EIS dated April 30, 2004
Exhibit No. WTD 11	Key to Log of Boring and Descriptive Terms for Soil
Exhibit No. WTD 12	
Exhibit No. WTD 13	Draft Report, Probabilistic Seismic Hazard Analyses, Brightwater Treatment Plant SR-9 and Portal 41 Sites, Snohomish County, Washington dated April 2, 2004
Exhibit No. WTD 14	Blakely, et al, The Cottage Lake Lineament: Onshore Extension of the Southern Whidbey Island Fault? USGS (undated poster)
Exhibit No. WTD 15	Open File Report 2004-1204, The Cottage Lake Aeromagnetic Lineament: A Possible Extension of the Southern Whidbey Island Fault, Washington, USGS 2004
Exhibit No. WTD 16	CD Brightwater Treatment System Phase I Documentation
Exhibit No. WTD 17	Assessing Earthquake Hazards and Reducing Risk in the Pacific Northwest by Albert M. Rogers, et al, printed by the US Government Printing Office, 1996
Exhibit No. WTD 18	California Geological Survey, Chapter 7.5, Earthquake Fault Zoning, Dated June 21, 2004
Exhibit No. WTD 19	Seismic Refraction Evaluation report, April 27, 2004
Exhibit No. WTD 20	National Seismic-Hazard Maps: Documentation June 1996 from Open File Report 96-532
Exhibit No. WTD 21	Documentation for the 2002 Update of the National Seismic Hazard Maps by Arthur D. Frankle, et al, dated 2002
Exhibit No. WTD 22	Documentation of Changes in Fault Parameters for the 2002 National Seismic Hazard Maps – Conterminous United States except California By Kathleen M. Haller, et al, Open File Report 02-467
Exhibit No. WTD 23	The Southern Whidbey Island Fault: An Active Structure in the Puget Lowland, Washington article by Samuel Y. Johnson, et al dated March 1996
Exhibit No. WTD 24	Jeffrey R. Keaton resume
Exhibit No. WTD 25	Detailed LIDAR image from U.S. Geological Survey Open-File Report 2004-1204
Exhibit No. WTD 26	Digital Orthophotograph, Part of the Southeast Quarter Bothell Quadrangle, Washington
Exhibit No. WTD 27	Feature 8 Site Hillshade Image from LIDAR Topography
Exhibit No. WTD 28	LIDAR Topography Profiles of Eature 8, Corresponding to U.S. Geological Survey Profiles A-A' and B-B'
Exhibit No. WTD 29	Feature 8 Site Modified Hillshade Image from LIDAR Topography
Exhibit No. WTD 30	LIDAR Topography Profiles of Feature 8 Corresponding to Locations Shown on Previous Exhibit
Exhibit No. WTD 31	LIDAR Topography Profiles of Feature 8 Expanded from View in Previous Exhibit
Exhibit No. WTD 101	Ordinance No. 13680 dated November 23, 1999
Exhibit No. WTD 102	Ordinance No. 14278 dated December 11, 2001
Exhibit No. WTD 103	Draft Environmental Impact Statement on Brightwater Regional Wastewater Treatment System dated November 2002
Exhibit No. WTD 104	Ordinance No. 14043 dated February 21, 2001
Exhibit No. WTD 105	Ordinance No. 14107 dated May 15, 2001
Exhibit No. WTD 106	SEPA Register, King County Wastewater Treatment Division Dated March 8, 2001
Exhibit No. WTD 107	Revised Notice of Action, Adoption of North Treatment Facility Policy Citing Criteria dated February 27, 2001
Exhibit No. WTD 108	Regional Wastewater Services Plan; Summary of the Executive's Decision Process to Select a Final Brightwater System Alternative Dated December 2003
Exhibit No. WTD 109	Environmental Checklist; Adoption of North Treatment Facility
Exhibit No. WTD 110	Determination of Nonsignificance (DNS) dated May 3, 2001

Exhibit No. WTD 111	Amended Environmental Checklist dated July 31, 2001
Exhibit No. WTD 112	Notice of Issuance – Determination of Nonsignificance, Issued May 3, 2001
Exhibit No. WTD 113	Addendum to SEPA Environmental Checklist dated July 31, 2001
Exhibit No. WTD 114	Environmental Checklist; Identification of Final Candidate Sites
Exhibit No. WTD 115	Notice of Issuance – Determination of Nonsignificance, dated November 20, 2001
Exhibit No. WTD 116	SEPA Register, King County Wastewater Treatment Division Dated December 19, 2001
Exhibit No. WTD 117	State Environmental Policy Act Determination of Significance (DS) And Request for Comments on Scope of Environmental Impact Statement dated May 23, 2002
Exhibit No. WTD 118	Memo and Addendum No. 1 to Brightwater Final EIS dated February 2, 2004
Exhibit No. WTD 119	Memo and Addendum No. 2 to Brightwater Final EIS dated April 2, 2004
Exhibit No. WTD 120	Final Environmental Impact Statement dated April 2004
Exhibit No. WTD 121	Brightwater Project Goals
Exhibit No. WTD 122	Brightwater – Woodinville Meeting Dates
Exhibit No. WTD 123	Brightwater Meetings Held in Woodinville
Exhibit No. WTD 124	Brightwater – Woodinville City Council Meetings
Exhibit No. WTD 125	Woodinville City Council Brightwater Briefing Dates
Exhibit No. WTD 127	Lake Forest Park Water District and King County Wastewater Treatment Division Agreement dated December 5, 2003
Exhibit No. WTD 128	Memorandum of Agreement between King County and the City of Woodinville Regarding Principles for Addressing Mitigation for the Brightwater Project, Signed on April 6 & 8, 2004
Exhibit No. WTD 129	Memorandum of Agreement between King County and the City of Bothell Regarding Principles for Addressing Mitigation for the Brightwater Project, Signed on June 9, 2004
Exhibit No. WTD 130	Memorandum of Agreement between King County and the City of Shoreline Regarding Mitigation for the Brightwater Project, Signed on May 6 & 11, 2004
Exhibit No. WTD 131	Agreement for Services Between King County and the City of Woodinville Signed on November 13, 2002
Exhibit No. WTD 132	Agreement for Services Between King County and Snohomish County Concerning Services Performed by Snohomish County for the Brightwater Wastewater Treatment Project, Signed on September 11, 2002
Exhibit No. WTD 134	Newsletter sent out from Ron Sims, King County Executive mailed out September 2001
Exhibit No. WTD 137	Phase 2 – Siting the Brightwater Treatment Facilities; Site Selection and Evaluation Activities, Dated September 2001
Exhibit No. WTD 139	List of Brightwater Project Public Meetings, Hearings, and Workshops During the Brightwater Siting Process
Exhibit No. WTD 140	Newsletters sent out
Exhibit No. WTD 141	Newsletter Displays as of August 2001
Exhibit No. WTD 148	Resume of Robert G. Peterson
Exhibit No. WTD 149	String of Emails
Exhibit No. WTD 150	SGMP Effort for the NETP Area
Exhibit No. WTD 151	Summary of WTD Response to 2001 Nisqually Earthquake
Exhibit No. WTD 152	Letter to Brian Speakes, Secretary, Crystal Lake Homeowners Association. From Craig S. Weaver, U.S. Geological Survey National Earthquake Program, Dated September 6, 2003
Exhibit No. WTD 154	(Offered but **not admitted**) Shannon & Wilson Probabilistic Seismic Hazard Analysis final report
Exhibit No. WTD 155	Brightwater Siting Decision Process
Exhibit No. WTD 157	Section 11 – Earthquakes and Other Natural Disasters, dated February 2003
Exhibit No. WTD 158	MDNS – Northshore School District No. 417

Exhibit No. WTD 159	Excerpt "Probablistic vs Deterministic Methods," from *The Geology of Earthquakes* (1997) by Dr. Robert Yeats, Kerry Sieh, and Clarence R. Allen
Exhibit No. WTD 160	USGS Poster, Field and Laboratory Data From an Earthquake History Study of the Waterman Point Fault, Kitsap County, Washington, Nelson, et al (2003)
Exhibit No. WTD 161	USGS Poster, Maps and Data from a Trench Investigation of the Utsalady Point Fault, Whidbey Island, Washington, Johnson, et al (2003)
Exhibit No. WTD 162	*Estimation of probability of Fault Rupture on LIDAR Lineament 4, Jeffrey R. Keaton (July 14, 2004)
Exhibit No. WTD 163	Page references to SKEA Asserted Seismic Surface Rupture Impacts and Associated/FEIS Analysis

JNOC:gao
Brightwater RPT